

REMARKS

We have carefully considered the Office Action dated January 10, 2008, in which all claims are rejected as obvious. We have amended claims 1 and 15 to better claim the invention.

The Examiner cites different combinations of three, four and five references as making obvious independent claims 1, 15, 32 and 38. In correspondence with the Office Action, we discuss the combination cited against independent claims 15, 32 and 38 before the combination cited against claim 1.

Claim 15, as amended, states:

A purification module for use with a wearable or portable hydrating fluid container, the purification module including
tubing for providing a path for the hydrating fluid from the container;
means for signaling when hydrating fluid is to flow along the path from the container through the tubing to a mouthpiece or orifice; one or more solid state UV devices that are positioned in the path, either in the tubing, or in the region of the container that is shaped to join the tubing, or both, the UV devices providing UV radiation in a germicidal range to purify the flowing hydrating fluid, the UV devices turning on when the means for signaling signals hydrating fluid flow and turning off otherwise; and
a power supply that provides power to the purification module.
(emphasis added)

The purification module operates solid state UV devices intermittently, to purify a hydrating fluid, e.g. water, as the water flows past the solid state UV devices to a mouthpiece or orifice. The solid state UV devices are positioned in a path that consists of tubing and/or a region of a container that is shaped to join the tubing. When water flows along the path to the mouthpiece or orifice, the solid state UV devices turn on and when

water is no longer flowing along the path the solid state UV devices turn off. The water flows along the path past the solid state UV devices only once, and the purification module uses minimal power with its particular intermittent operation.

In paragraph 2 of the Office Action, the primary reference relied upon in the various combinations is Carmignani. Therefore, we discuss the teachings of Carmignani first and then add to the teachings those of the combined references.

In contrast to the water purification module of claim 15, the Carmignani system is a photocatalytic reactor. See, e.g., Col. 4, lines 27-38. The photocatalytic reactor requires an “open cell, three dimensionally reticulated, fluid permeable, semiconductor unit.” See, Abstract. The reticulated photocatalytic semiconductor unit is designed such that it “provides a high surface area, rigid structure to which photocatalyst is adhered or incorporate.” Col. 4, lines 65-67. The open cells, which are designed to produce turbulence in the water, are formed with interstitial struts. See, e.g., Col. 4, line 67- Col. 5, line 8. The Carmignani photocatalytic reactor requires photoactivating lights, which may but need not be UV devices. See, Col. 7, lines 36-40. The Carmignani reference teaches, for example, using visible wavelength LEDs for more efficiency. See, Col. 8, lines 30-34.

Accordingly, the Carmignani system not only operates in a different manner – photocatalytic as opposed to UV purification – the Carmignani system requires water flow through a reticulated semiconductor unit that is “photoactivated” by LED lights. See, Col. 8, lines 14-26. The unit is rigid, specifically designed to provide turbulence to the water flow and has adhered thereto or incorporated therein a photocatalyst, and thus

differs significantly from the tubing and/or portion of a wearable or portable hydrating fluid container that joins the tubing in which the UV devices are positioned in the current invention. While Carmignani refers to UV emitting devices, the devices are used as photoactivating lights and not to purify the water directly. Further, Carmignani teaches visible wavelength LEDs are preferable. See, Col. 8, lines 32-34.

The Carmignani system also directs water past the photoactivating lights in more than one pass. See, Col. 8, lines 55-60. The water flows into the photocatalytic reactor through an inlet 22. The water then flows radially through the reticulated semiconductor unit 18 and axially through the reactor before exiting through outlet 24. See, Col. 8, lines 14 et seq.

The Forsberg reference is cited to add battery or solar power operation to the teachings of Carmignani. Like Carmignani, Forsberg teaches a system in which water is sent in multiple passes through a purification unit, which in the Forsberg system is a bacteriostat. See, Col. 23, lines 31-54. Specifically, Forsberg teaches **continual** recirculation of the water. While Forsberg teaches use of a battery, it does not teach minimal use of power by intermittent operation, and in fact, teaches away from such operation. Thus, a combination of Carmignani and Forsberg teaches a continuously operating photocatalytic reactor that may be powered by battery.

The Englehard reference is combined with Carmignani and Forsberg to add thereto a teaching of controlling power provided to a UV device to turn the UV device on when water is flowing and turn off when water flow ceases. However, Englehard spe-

cifically **teaches away** from turning off the UV device when water flow ceases. See, e.g., Abstract; Col. 8, lines 20 et seq.

In the Englehard system a time delay circuit 188 is specifically included to keep the UV device on after water flow ceases. The UV device operates on the order of *minutes* after water flow ceases. See, e.g., Col. 8, lines 38-54. Further, Englehard teaches treating water by causing a momentary discharge that forces the UV device remain on under the control of the time delay circuit, such that the UV device radiates the non-flowing water. See, Col. 8, lines 59-64.

The three combined references thus teach a photocatalytic reactor system that operates with multiple passes of the water past photoactivating UV devices that remain turned on for a predetermined time after water flow ceases. The combination does not teach or suggest a system that operates solid state UV devices located in a path from a container to a mouthpiece or orifice only when water flows along the path. The combination thus does not teach or suggest a system that intermittently operates in a particular manner that minimizes power usage, as set forth in the pending claims.

Accordingly, the combination does not make obvious the subject matter of independent claim 15 and the claims that depend therefrom because, *inter alia*, the combination does not teach or suggest a purification module in which one or more solid state UV devices are positioned in a path from a portable or wearable container to a mouthpiece or orifice, either in tubing, or in the region of a container that is shaped to join the tubing, or both, with the UV devices turning on when a means for signaling signals water flow and turning off otherwise.

For the same reasons, the combination of Carmignani, Forsberg and Englehard does not teach or suggest the placement of solid state UV devices or their particular intermittent operation set forth in independent claims 32 and 43 and the claims that depend therefrom.

In paragraph 3 of the Office Action a combination of five references is also cited against claim 15. We have discussed how Englehard teaches away from operating UV devices by turning them off when the water ceases to flow. We agree with the Examiner that neither the Carmignani reference nor the '860 reference teach turning solid state UV devices on when water flows and off otherwise. The Morrow and Iana references do not describe use of UV devices in a water purification system and thus do not provide the missing teaching. Accordingly, a combination of these five references does not teach or suggest the invention set forth in independent claim 15 or the claims that depend therefrom because, *inter alia*, the combination does not teach or suggest a purification module in which one or more solid state UV devices positioned in a path from a portable or wearable container to an orifice or mouth piece, either in tubing, or in the region of a container that is shaped to join the tubing, or both, turn on when the means for signaling signals water flow and turn off otherwise.

While we do not comment on the respective claims that depend from claim 15, because independent claim 15 is allowable over the cited combination of five references, we point out that Morrow shows an expandable housing structure that can be transported by vehicle and expanded for camping. There is thus no teaching or suggestion in Morrow or in general to combine the teachings of Morrow concerning material suitable for the

roof and walls of the housing structure with teachings directed to water purification systems and/or components thereof.

In paragraph 5, claim 1 is rejected over a combination of four references. As discussed above, there is no teaching or suggestion of the intermittent operation set forth in claim 1 - since the '860, Carmignani and Iano references alone or in combination do not teach intermittent operation and, when combined with Englehard which teaches away from such operation, the four reference combination similarly teaches away. Accordingly, the combination does not teach or suggest the invention as set forth in claim 1 and the claims that depend therefrom because, *inter alia*, the combination does not teach or suggest a hydration system in which one or more solid state UV devices, which are positioned in tubing that provides a path from a bladder to a mouthpiece or orifice, turn on when a sensor indicates water flow and turn off when the sensor indicates that fluid is not flowing from the bladder.

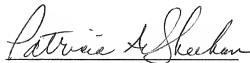
We point out also that the '860 reference describes a system in which water may flow first through a filter that runs the length of the system and then through UV permeable tubing 5, which defines a circuitous route past a UV lamp. The '860 reference thus teaches *prolonging* the time the power must be supplied to the system components, rather than minimizing the time power is required as is done by the current invention.

We do not specifically address the Examiner's rejections of the claims that depend from claims 1, 15, 32 and 38. This should not be construed as acquiescence to the rejections, but as recognition that the rejections are moot based on our remarks regarding the allowability of the independent claims 1, 15, 32 and 38, as amended.

The claims, as amended, should now be in form for allowance. We ask that the Examiner reconsider his rejections and issue a Notice of Allowance for all pending claims.

Please charge any fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

A handwritten signature in cursive script, reading "Patricia A. Sheehan", is written over a horizontal line.

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